ARGUMENT/REMARKS

Applicant's undersigned Attorney thanks the Examiner for a kind and thorough review of the Application.

The specification has been amended to satisfy the grammatical requirements. In addition the appropriate headings have been placed into the specification as the examiner requested in the office action. There has been no new material added. A clean copy of the specification is attached hereto.

The Abstract of the Disclosure was made more specific. A clean copy of the abstract of the disclosure is also attached hereto.

No Information Disclosure Statement has been issued because there is no prior art cited in the Specification and/or referenced in the patent application. Applicant's undersigned Attorney is not sure why this requirement was made.

Claims 1-16 have been cancelled and claims 17-22 have been added which are patentable over the Stoynoff, Jr (5,682784) in view of DeTorre (5,423,240) for the following reasons.

First, the present invention claims a tooling assembly that utilizes a first rotatable member with a first plurality of a blades which are made only of steel and a second plurality of blades which are made only of carbide, wherein each unique one of the second plurality of blades is operatively positioned between a unique pair of blades from the first plurality of blades; and a second rotatable member with a third plurality of blades made only of steel and a fourth plurality of blades made only of carbide

wherein each unique one of the fourth plurality of blades is operatively positioned between a unique pair of blades from the third plurality of blades.

Importantly, the blades of the second plurality of blades are constrained to uniquely and cuttingly engage only the blades from the third plurality of blades(e.g. , carbide to steel contact) and the blades from the first plurality of blades are constrained to uniquely and cuttingly engage only blades from the fourth plurality of blades(e.g., steel to carbide contact). Allowing for each unique carbide blade to be operatively positioned only above and to overlay only another carbide blade will ensure carbide to carbide roll forming and steel to steel roll forming contact after the cutting is done. All cutting is done by the engagement of blades having dissimilar materials. The carbide blades will remain operational even if one of the carbide blades chips or fractures since the enclosing steel blades will allow the assembly to operate even if the two selectively engaging carbide blades chip or fracture (e.g. the containing steel blades are both structurally sound and operationally effective which is sufficient to allow the assembly to remain operational).(see lines 2-16 of page 10, of the Original Specification).

Thus, the claimed assembly having carbide blades which only cuttingly engage steel blades but which only later formably engage only carbide blades, and having steel blades which only cuttingly engage carbide blades but which later formably engage only steel blades, while each unique pair of steel blades operatively contains a unique one of the carbide blades, provides for great benefits which are not found in the prior art.

This arrangement is important because in form roll assemblies made entirely of steel there is considerable flex and wear of the blades due to dust collection and the

operation of the roll forming machine. (e.g. see line 5-17 of page 2 of the Original Specification). It is also known that carbide blades tend to chip or fracture and when carbide blades contact steel blades the steel blades will wear faster (see for example, column 1, lines 37-38, of the DeTorre reference).

Therefore, the objective of the present claims is that the steel blades containably and cooperatively protect the carbide blades from chipping or fracturing when the blades encounter vibration (i.e. vibration due to the cutting functions of the blades), (see line 19-23 of page 7 of the Original Specification), while the structural strength of the steel blades also allows the assembly to continue to operate even if each of the contained selectively engaging carbide blades chips or fractures. Further, the use of the carbide blades reduces the flex of the entire tooling assembly and reduces the wear on the tooling assembly that is associated with an "all steel" type blade assembly. (see line 19-23 of page 7 of the Original Specification).

Containably placing each carbide blade between a respectively unique pair of steel blades and constraining the carbide blades to only cuttingly engage steel blades while respectively lying above (e.g., overlaying) another carbide blade allows the assembly to continue to desirably function even if one or more of the carbide blades chip or fracture (i.e. the steel blade that respectively and cuttingly engages the chipped/fractured carbide blade will, due to its ability to resist flex, be able to overcome the chip/fractured blade so that the form roll assembly will continue to function in the desired manner (e.g., see lines 23-24of page 9 and lines 1-16 of page 10 of the Original Specification)). Moreover, since the carbide blades are containable placed between two steel blades the carbide blades will be protected from increased

vibration forces created from the carbide blade being chipped (e.g see line 19-23 of page 7 of the Original Specification).

Thus, to achieve these objectives it is important to have the carbide blades cuttingly engage only steel blades and to constrain the carbide blades to formably engage only other carbide blades. It is also important to have only carbide blades being operatively positioned above carbide blades.

The DeTorre reference specifically requires that a carbide blade cuttingly engages a steel blade so that there is a self sharpening effect (i.e., the blades can not be made of similar materials) which, specifically and directly teaches away from having carbide blades operatively and formably engaging carbide blades or of having each carbide blade operatively and respectively contained between unique pairs of steel blades. (See Colume 1,lines 34-42 of the DeTorre reference).

Therefore, since the present invention teaches that the carbide blades are constrained to contact only the carbide blades (e.g., carbide blades lie above carbide blades) and the steel blades are constrained to only contact the steel blades, the claimed combination of the carbide and steel blades in the present invention do not follow the teachings of the DeTorre reference and therefore is not made obvious by the Stoynoff Jr. reference in view of the DeTorre reference.

As earlier stated, Applicant has found that positioning each carbide blade between a unique pair of steel blades will allow the cutting/forming apparatus to continue to function in a desired manner even if one or more of the carbide blades are chipped. That is, the unique pairs of steel blades will give the carbide blades greater resistance to vibration type degradation due to increased vibration forces created from

the carbide blade being chipped (e.g see line 19-23 of page 7 of the Original Specification) and if the steel blade that respectively and cuttingly engages a carbide blade becomes dull or broken the cuttingly engaging carbide blade will compensate for the dull or broken steel blade due to its relative flex resistance nature and the carbide blade will be able to frictionally engage the broken or dull steel blade and perform the cutting job (e.g. see lines 23-24of page 9 and lines 1-16 of page 10 of the Original Specification) . Further, constraining only blades of dissimilar materials to cuttingly engage also reduces the likelihood of chip type damage or degradation.

None of the art of record teaches or discloses that blades of substantially similar material should only cuttingly engage with each carbide blade operatively contained between a unique pair of steel blades.

For these reasons the proffered claims are allowable over the art of record, and such allowance is requested.

If there are any further questions regarding this matter, please call the Applicant's undersigned Attorney at (248)-324-7787

Respectfully submitted,

John G. Chupa (Reg. No. 33,483)
Law Offices of John Chupa & Associates, P.C.
28535 Orchard Lake Rd. Suite 50
Farmington Hills, MI 48334
Attorney for Applicant